



An ITSP Case Study: Vodatel Croatia

Powered by AudioCodes Mediant™ and MediaPack™ Media Gateways

Vodatel Croatia, one of the leading Croatian companies offering telecommunication services based on Internet technology, has deployed AudioCodes' Media Gateways in their VoIP network as trunking gateways and customer access (CPE) equipment.

By utilizing AudioCodes Mediant™ 2000 media gateways, Vodatel interconnects its growing VoIP service network to peering national and international Service Providers. Currently, this interconnection includes over 50 E1s and is constantly growing, providing service to enterprise and residential users.

By deploying hundreds of AudioCodes MediaPack™ and Mediant media gateways, Vodatel connects its growing enterprise and residential customer base to its VoIP service network. The Mediant media gateways connect to the existing PBXs that are located in customer premises, and provide a seamless transition from existing Service Providers. The MediaPack media gateways connect SMBs and residential users into the service.

"AudioCodes has been selected as the vendor of choice for trunking and access media gateways at the same time with the decision about our Softswitch vendor" said Mr. Sebastian Popovic, CEO of Vodatel. "AudioCodes has committed to interoperate with the Softswitch using any protocol supported by the Softswitch, and executed on this promise, connecting to the Nortel Communication Server 2000 Softswitch. In addition to its compatibility and flexibility, AudioCodes' equipment is used to simultaneously support H.323, MGCP, MEGACO and SS7 Tunneling using Sigtran M2UA on the same media gateways. This kind of support of interoperability and control protocols is exactly what we were looking for in our media gateways."



Vodatel Croatia

Vodatel is one of the leading Croatian companies offering telecommunication services based on Internet technology. Their goal is to provide users with simple and accessible data, voice and video communications with an emphasis on Internet technology.

In addition to the provision of classic Internet services, Vodatel offers companies customized telecommunication services as well as high quality national and international private networks using the Internet infrastructure.

Vodatel was founded in Zagreb and is based on years of experience of its founders, which have been active from the very beginning of the commercial development of the Internet market in Croatia and Slovenia in the field of Internet technology. Vodatel's services include dialup internet services, ADSL over satellite, VPN services, hosting and integrated voice and data services to enterprises, SMBs and residential customers as well as triple-play services using FTTH technology for residential customers in Croatia.



Vodatel VoIP Network

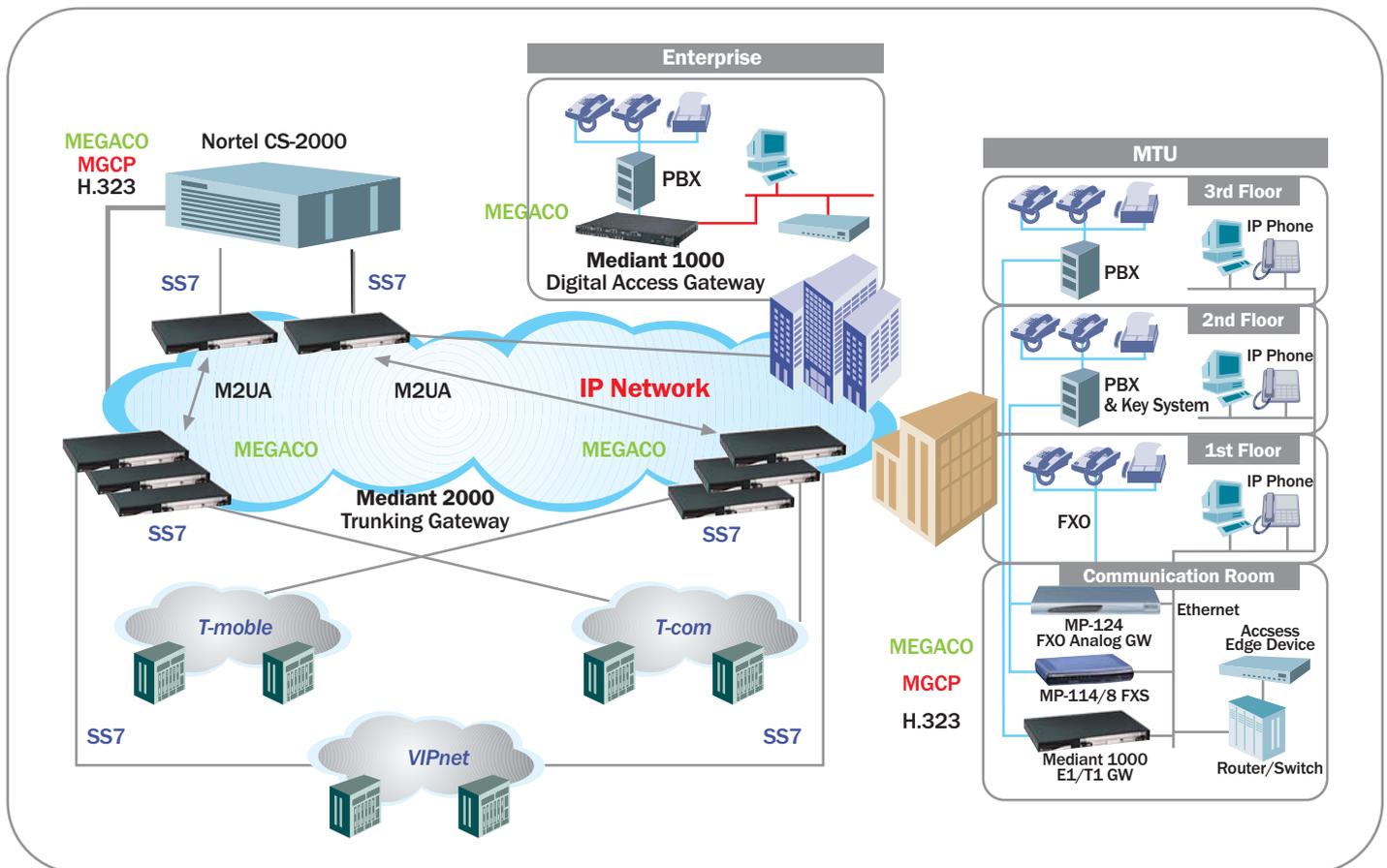
The Vodatel VoIP network is designed around the capacity and capabilities of the Nortel Communication Server 2000 Softswitch as the main component of the network.

"The flexibility of AudioCodes' media gateways has saved Vodatel a lot of time, effort and investment, connecting the various peering Service Providers and access gateways into the Nortel CS-2000 Softswitch," said Mr. Dean Janacek, Manager of Vodatel. "Currently, we have 8 AudioCodes Mediant 2000 platforms installed in our network, connecting our VoIP network to PSTN, PLMN and international providers. We use AudioCodes' SS7 trunking feature with Sigtran M2UA to aggregate multiple SS7 E1 connections from different peering service providers into two SS7 E1s connected to our two SS7 interfaces of the CS-2000. These gateways are controlled by MEGACO. In addition, we use hundreds of AudioCodes MediaPack analog gateways and Mediant™ 1000 hybrid access gateways to connect our enterprise and residential customers. These gateways are controlled by MGCP, H.323 and MEGACO. The flexibility of using all those protocols with the same line of gateways saved us a lot of resources in our Softswitch."

Selecting the Right Vendor for the Trunking Gateway

One of the key elements in every CLEC VoIP network is the trunking media gateway, interconnecting its network with peering Service Providers. As an alternative telephony Service Provider, many of the calls generated in Vodatel's telecom network are terminated in other provider's networks, traversing 8 AudioCodes Mediant 2000 media gateways. As a key component in the Vodatel VoIP network, AudioCodes Mediant 2000 media gateways are providing the following benefits:

- **Media Control Protocols** - AudioCodes' Mediant family of media gateways is one of the most flexible in terms of media gateway control protocols. It supports H.323, SIP, MGCP and MEGACO. Vodatel use almost all of these protocols simultaneously in their network.
- **SS7 & Sigtran** - AudioCodes Mediant family of media gateways support the tunneling of SS7 links using Sigtran M2UA and M3UA. In the case of the Vodatel network, Vodatel uses the M2UA functionality to tunnel multiple SS7 links from multiple peering service providers into two SS7 links provided by the CS-2000 switch.
- **Interoperability** - AudioCodes' commitment to interoperability allows customers the freedom of choice when selecting their preferred Softswitch vendor, and class 4 and 5 switches. In the case of Vodatel, AudioCodes is committed to full interoperability with the selected Softswitch vendor.
- **VoIP Quality** - AudioCodes uses its own DSP technology to supply the best VoIP quality in the marketplace today, as proven by the ETSI 3rd Speech Quality Event.
- **Scalability** - One of the unique features of the AudioCodes Mediant 2000 media gateway is the pay-as-you-grow approach. A built-in feature key allows the customer to buy the media gateway hardware scalable from 1 up to 16 E1/T1 ports, and pay according to usage. This flexibility allows the Service Provider to reduce their initial investment, and only pay for revenue generating equipment, followed by a remote upgrade to the system in order to support more connections in the future.
- **Reliability** - After extensive testing of the Mediant 2000 gateway compared with other vendor solutions, it was proven to be one of the most reliable products on the market today.



Selecting the Correct Vendor for Access Gateways

Access Media Gateways serve as CPE (Customer Premises Equipment), connecting enterprise PBX systems and residential phones and faxes to the Vodatel VoIP network, over any broadband connection.

Enterprise and residential customers are the main “cash-cow” of any Service Provider telephony network, and are most critical when dealing with quality of service, service availability and voice quality. Selecting the MediaPack for analog connections and the Mediant 1000 for digital connections was natural for Vodatel due to the following reasons:

- **Reliability** - After implementing the Mediant 2000 for a trunking application, it was proven to be one of the most reliable

products in the market today. The Mediant 1000 and MediaPack share the same software and hardware infrastructure and provide the same level of reliability.

- **Interoperability** - One of the roles of an access media gateway is to connect with numerous different PBXs and key systems using different types of signaling protocols and flavors. AudioCodes proven track record of interoperability has enabled the MediaPack and the Mediant a natural choice for a standard access media gateway.
- **Manageability** - A CPE media gateway, installed in hundreds of units countrywide, must include extensive management capabilities. The Mediant and MediaPack family of media gateways support many unique management features relevant for Service Provider networks.
- **VoIP Quality** - Any degradation in voice quality compared to the TDM telephony network is not acceptable by Vodatel’s

customers. AudioCodes use of its own DSP technology supplies the best VoIP quality in the marketplace today, as proven by the ETSI 3rd Speech Quality Event.

- **Support** - The support provided by AudioCodes and its Croatian partner Centrus TIM, for the trunking gateways solution, and for the interoperability process with the CS-2000 using multiple control protocols, has proven to Vodatel that AudioCodes is the correct choice for CPE gateways.
- **Fax** - AudioCodes' implementation of enhanced fax over IP protocols and packet loss recovery mechanisms such as T.38 allowed Vodatel to provide a high quality fax service that was impossible to achieve over competitive products.

Summary

"The delivery of voice services to one of the most important CLECS in Croatia using our equipment is another achievement we are proud of", said Lior Aldema, Vice President of Marketing for AudioCodes. "Our investment in support of multiple control protocols and interoperability with many Softswitch partners has paid off, as it did with many other customers. We are sure that our success here will help us serve more customers in the future".

About AudioCodes Mediant 2000 Media Gateway

The Mediant 2000 is AudioCodes compact and cost-effective media gateway solution and is designed to interface between TDM & IP networks in enterprises or small-scale carrier locations. Incorporating AudioCodes' innovative Voice over Packet technology, the Mediant 2000 enables rapid time-to-market and reliable, cost-effective deployment of next-generation networks. The Mediant 2000 is based on VoIPerfect™, the comprehensive and field-proven architecture used in all AudioCodes' product lines ranging from voice over packet processors to high-density media gateway platforms. In addition to supporting up to 16 E1/T1 media gateway ports, it also supports the integration of an SBC (Single Board Computer) for running third party applications.



About AudioCodes Mediant 1000 Media Gateway

The Mediant 1000 is AudioCodes compact and cost-effective media gateway solution and is designed to interface between TDM & IP networks in enterprises or small-scale carrier locations. Incorporating AudioCodes' innovative Voice over Packet technology, the Mediant 1000 enables rapid time-to-market and reliable, cost-effective deployment of next-generation networks. The Mediant 1000 is based on VoIPerfect, the comprehensive and field-proven architecture used in all AudioCodes' product lines ranging from voice over packet processors to high-density media gateway platforms. It can host up to six hot swappable, modular modules that support a mixture of FXS, FXO, and E1/T1 media gateway ports. In addition, it also supports the integration of an OSN (Open Solution Network) server, for running third party applications.



About AudioCodes MediaPack Media Gateways Family

The MediaPack family of analog gateways are designed and optimized to address the needs of Service Providers and enterprises for feature-rich, high quality analog & BRI media gateways. The MediaPacks enable a wide range of applications including converged access, IP Centrex, fixed-mobile convergence, and next generation PBXs. Ranging from 2 to 24 ports of FXS/FXO connectivity or 1 to 4 BRI interfaces, the MediaPack family enables the connection of analog devices such as phones, faxes and modems into the IP world, and the connection of PBXs into the VoIP network.



About AudioCodes

AudioCodes Ltd. (NASDAQ: AUDC), provides innovative, reliable and cost-effective Voice over Packet (VOP) technology, Voice Network products, and applications to OEMs, Network Equipment Providers, Service Providers and System Integrators worldwide. AudioCodes provides a diverse range of flexible, comprehensive media gateway and media processing technologies (based on VolPerfect™ – AudioCodes' underlying, best-of-breed, core media gateway architecture) and Session Border Controllers (SBCs). The company is a market leader in product development, focused on VoIP Media Gateway, Media Server and SBC technologies and network products. AudioCodes has deployed tens of millions of media gateway and media server channels globally over the past few years and is a key originator of the ITU G.723.1 standard for the emerging Voice over IP market. The Company is a VoIP technology leader focused on quality, having recently received a number one ranking from ETSI for outstanding voice quality in its media gateways and media servers. AudioCodes voice network products feature media gateway and media server platforms for packet-based applications in the converged, wireline, wireless, broadband access, enhanced voice services and video markets. AudioCodes enabling technology products include VoIP and CTI communication blades, VoIP media gateway processors and modules, and CPE devices. AudioCodes' headquarters and R&D facilities are located in Israel with an R&D extension in the U.S. Other AudioCodes' offices are located in Europe, the Far East, and Latin America.

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Ref. # LTRM-06006 V.1 05/07